

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
9 June 2005 (09.06.2005)

PCT

(10) International Publication Number
WO 2005/052558 A1

(51) International Patent Classification⁷: G01N 21/64, 21/65, 33/483, A61B 6/00, 5/00

(21) International Application Number: PCT/CA2004/002040

(22) International Filing Date: 26 November 2004 (26.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 60/525,139 28 November 2003 (28.11.2003) US

(71) Applicant (for all designated States except US): BC CANCER AGENCY [CA/CA]; #603 - 686 West Broadway, Vancouver, British Columbia V5Z 1G1 (CA).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ZENG, Haishan

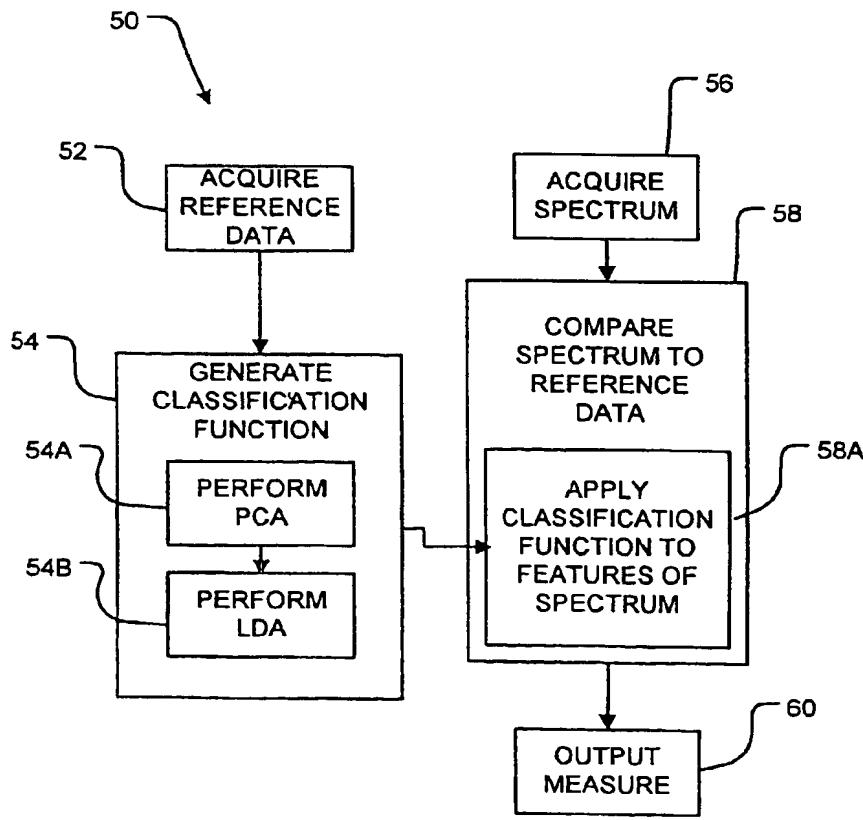
[CA/CA]; 1389 East 37th Avenue, Vancouver, British Columbia V5W 1G6 (CA). LUI, Harvey [CA/CA]; 3450 Trafalgar Street, Vancouver, British Columbia V6L 2L8 (CA). HUANG, Zhiwei [CN/SG]; BPK 516, Jurong West Street 52, #09-53, Singapore 640516 (SG). MCLEAN, David, I. [CA/CA]; 1246 West 26th Avenue, Vancouver, British Columbia V6H 2A9 (CA).

(74) Agents: MANNING, Gavin, N. et al.; Oyen Wiggs Green & Mutala, 480 - The Station, 601 West Cordova, Vancouver, British Columbia V6B 1G1 (CA).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,

[Continued on next page]

(54) Title: MULTIMODAL DETECTION OF TISSUE ABNORMALITIES BASED ON RAMAN AND BACKGROUND FLUORESCENCE SPECTROSCOPY



(57) Abstract: Methods and apparatus for classifying tissue use features of Raman spectra and background fluorescent spectra. The spectra may be acquired in the near-infrared wavelengths. Principal component analysis and linear discriminant analysis of reference spectra may be used to obtain a classification function that accepts features of the Raman and background fluorescence spectra for test tissue and yields an indication as to the likelihood that the test tissue is abnormal. The methods and apparatus may be applied to screening for skin cancers or other diseases.

WO 2005/052558 A1



TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.